

Application No. 10/069,233

REMARKS

By this amendment, claims 1, 3, 4, 9, 10, 12, 14, 16, 18, and 19 are amended and claims 5 and 17 are canceled to place this application in condition for allowance. Currently, claims 1-4, 6-16, 18, and 19 are before the Examiner for consideration on their merits. Claims 3, 4, 12, 14, 18, and 19 are amended to use "table" consistently throughout the claims.

In the Office Action, the Examiner rejected certain claims under 35 U.S.C. § 112, second paragraph based on indefiniteness. More specifically, the Examiner took issue with the use of the terms "multi-axis", and "uncoupled." Applicant contends that these terms are not unclear when applying the test for indefiniteness. As the Examiner knows, definiteness is analyzed in light of the teachings of the prior art, and the instant disclosure as it would be interpreted by one of skill in the art. **In re Moore**, 169 USPQ 236 (CCPA 1971). Applicant contends that multi-axis is not indefinite, particularly in view of the amendments to the claims wherein the tables are defined as having movement in six degrees of freedom. This clearly implies that there is more than one axis for each table, thus the use of "multi-axis" in the claims. This term is readily understood when reading the specification, and amendment to the claims is not mandated by 35 U.S.C. § 112, second paragraph.

Similarly, the use of the term "uncoupled" is not vague or unclear when viewing the specification in light of that known in the art. As pointed out in the specification, applying motion to one table does not result in motion to the other table, and the tables are thus uncoupled. Uncoupled is clearly used in the specification in the context of the table's operation and this term is not indefinite when applying the test in **In re Moore**. Therefore, the rejection under 35 U.S.C. § 112, second paragraph must be withdrawn. If the language of the claims is the only outstanding issue left in the application, the Examiner is invited to telephone the undersigned to resolve such issue.

Turning to the prior art rejection, the Examiner cites United States Patent No. 5,111,685 to Langer and 3,827,289 to Borg to reject the claims. Neither of these references establishes a *prima facie* case of anticipation or obviousness, and the rejection as applied to the claims must be withdrawn. The rejections are addressed under the headings of the relied-upon prior art.

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LANGER

Claims 1-4, 6, 7, 10-15 and 18 are rejected based on Langer and 35 U.S.C. § 102(b). In this rejection, the Examiner has taken the position that the roller surfaces of Langer constitute the claimed multi-axis rigs/tables and therefore the rejected claims are anticipated.

This rejection is flawed for the simple reason that Langer does not teach the system of claim 1 wherein each table has a controlled movement in six degrees of freedom or the method of claim 3 which also requires such movement. In Langer's patent, the vehicle is maintained for free movement in roll, pitch and vertical directions, and if desired, force inputs for roll, and aerodynamic forces in the vertical direction can be added into the test vehicle to simulate the effect of increased speed, cornering or the like on the vehicle, see Column 1, Line 44. In comparison and according to the invention displacements/accelerations of two system parts, e.g., the chassis and engine, are under control in longitudinal, lateral, vertical, roll, pitch, and yaw directions. Lacking this feature, Langer cannot anticipate independent claims 1 and 3.

In addition, the multi axis surfaces for receiving wheels in Langer's patent can only be adjusted for its positions to fit different sizes of vehicles to be tested. They are different in purpose and function from the multi-axis tables in the present invention.

The belt surfaces in Langer cannot be considered as tables are presently claimed. In order to support the wheels, the belt surfaces have to be kept in horizontal positions during the test so they cannot be rotated about the longitudinal axis or lateral axis. The multi-axis simulation tables/rigs of claims 1 and 3 actually have motions of all 6 degrees of freedom (longitudinal, lateral, vertical, roll, pitch, and yaw). In Langer, the belt surfaces are flexible so the surfaces will definitely vibrate randomly during the test. Such random vibrations of supporting surfaces are neglected in Langer, given the purpose of the testing utilizing his devices. As a comparison, the tables/rigs of the present invention are designed so that the vibration at any surface point is under control. Since the rigid fixtures supporting the exhaust system are mounted directly on the tables, the motions of the fixtures are thus directly controlled, which results in an accurate, well-correlated simulation.

Moreover, there is no basis to conclude that it would be obvious to modify Langer and arrive at the invention. Any such assertion would be considered hindsight and an improper basis to reject the claims. Since the claims are not anticipated by Langer and there is no proper basis to conclude that claims 1 and 3 are obviated by this reference, the rejection must be withdrawn.

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BORG

The Examiner relies on United States Patent No. 3,827,289 to Borg to allege that claims 1, 3, 5, and 17 are anticipated. Applicant traverses this rejection in light of the amendments to claims 1 and 3.

First, Borg is not even related to the invention in that it is designed to simulate terrain conditions for a vehicle. In contrast, the present invention is concerned with simulation testing using a pair of simulation tables that are linked to different parts of a system. In rejecting the claims, the Examiner asserts that element or connecting means 22 corresponds to the claimed table or rig. However, element 22 is really a joint that connects to the vehicle, it is not a table, and the rejection is in error in this regard. The only table of Borg is singular in nature and supports each of the four spindle actuators.

Borg is really directed to a design of a joint that is used to link actuators to a vehicle spindle for vehicle testing. In the SUMMARY OF THE INVENTION section of Borg, it is stated "*this invention provides each wheel with six degrees of freedom so that the vehicle may respond to terrain changes in the manner dictated by the suspension geometry.*" (Column 1, Line 40). In reality, each wheel spindle accepts control inputs via the joint, at most, in longitudinal, lateral, vertical, and pitch directions. No inputs can be applied to the wheel spindle in the roll and yaw directions. What this means is that even if the joint could be treated as a rigid table, the joint is controlled in only 4 directions although it does allow motions in all 6 directions. Element 64 has only two degrees of freedom allowing motions in vertical and yaw direction and control in the vertical direction only. In Borg's invention, 4 joints are used to support 4 wheel spindles of a vehicle to be tested. Such a system can have up to 16 actuators controlling the vehicle to be tested. Therefore, the vehicle can by no means be treated as a rigid table since a rigid body has only 6 degrees of freedom. In the instant invention, each multi-axis table is controlled for movement in 6 degrees of freedom and this control is not taught by Borg.

In Borg's invention, at least the inputs in the longitudinal, lateral, and pitch directions are controlled in terms of forces, which is less than the all motion controls of the instant invention. Therefore, Borg cannot anticipate claims 1 and 3.

In addition, there is no reason to modify Borg and arrive at the invention. The Examiner must have an objective basis for concluding obviousness, and there is no basis in the cited prior

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art to arrive at the claimed system and method. Any such rejection can only be based on hindsight and could not be sustained on appeal.

In the Borg patent, an exhaust system, if it exists, is mounted on the vehicle frame. The movements of exhaust supporting structures on the chassis and engine that are boundary conditions for exhaust systems are the responses to the inputs at wheel spindles. According to the invention, the movements of the exhaust supporting structures on separate parts, i.e., the chassis and the engine, are directly controlled. As a result of such difference in this control approach, the inventive system and method provides a significant improvement in accuracy, even assuming that one of skill in the art would use Borg's system to simulate the motion of an exhaust system. The superiority of the present invention weighs against any allegation that it would be obvious to modify Borg and arrive at the invention. Any such allegation is again hindsight and an improper basis to predicate a rejection under 35 U.S.C. § 103(a).

SUMMARY

It is Applicant's contention that neither Langer nor Borg establishes a *prima facie* case of anticipation or obviousness and therefore, the rejections of record must be withdrawn.

The Examiner's attention is also directed to United States Patent No. 6,535,832. This patent is not effective prior art against the instant invention since its effective filing date is December 13, 2000, whereas the instant application's filing date is August 25, 1999. The '832 patent is not entitled to rely on its parent filing date since the subject matter claimed in the '832 patent was not present in the parent application.

If the Examiner believes that an interview with Applicants' attorney would expedite allowance of the application, the Examiner is invited to telephone the undersigned at 202-835-1753.

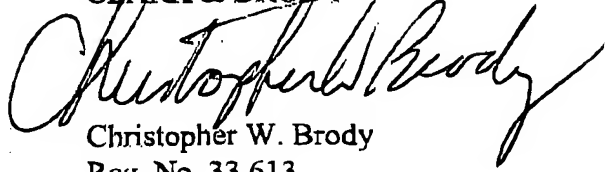
The above constitutes a complete response to all issues raised in the Office Action of October 8, 2003.

Again, reconsideration and allowance of this application is respectfully solicited.

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Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully requested,
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